

# ALASKA

## Summer Distribution of Beluga Whales in Cook Inlet

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Aerial surveys of the beluga whale (*Delphinapterus leucas*) population in Cook Inlet, Alaska, were flown during the summers of 1993-97 to study the distribution and status of this small, isolated stock which has an annual subsistence take. The surveys provided a thorough coverage of the coastal areas around the entire inlet (1,388 km) as well as up to 1,500 km of offshore transects most years. Coastal transects were flown 1.4 km offshore and well up each river, and offshore transects covered a strip width of approximately 2 km. Therefore, one or more times each year, systematic searches covered approximately 30% of the entire inlet and 100% of the coastal areas, where belugas were expected. All of the surveys were flown at 244 m altitude and approximately 185 km/hr using twin-engine, high-wing aircraft with bubble windows. Paired, independent searches and counts were conducted from the left (coastal) side of the aircraft, while a single observer searched on the right. Most (56-89%) of the beluga whales were in the northwest corner of Cook Inlet near the mouth of the Susitna River, except in 1997 when most (61%) were in the northeast corner, in Knik Arm. A small group (10-50 whales) was consistently found just south of Anchorage near the Chickaloon River. Other groups (generally <20 whales) occasionally occurred near other river mouths of the upper inlet but only rarely in the lower inlet. Sightings in September were more dispersed than in June and July. There appears to be a strong affinity to river mouths or delta channels where fish runs are constricted. Comparing our surveys to others made over the past 20 years indicates there has been a decrease in the distribution of sightings except in the northwest corner of Cook Inlet where the hunt occurs. Medians of our aerial counts have ranged from 264 to 361, but an absolute abundance cannot be calculated until a tagging program and video analysis are complete. There is no clear evidence that these counts have declined in the past 5 years.



BELUGA SIGHTINGS - JUNE 1974-82 (Mostly 1974-75)  
NMML Platforms of Opportunity Database

Figure 1: Beluga whale sightings made during hydrographic surveys in Cook Inlet during June and July 1974-75. Dashed areas indicate mud flats exposed at low tide. Note that most of the sightings were well offshore, and many sightings occurred below the E/W Forelands.



BELUGA SURVEYS - JUNE 1993

Figure 2: Aerial survey tracklines and beluga whale groups seen 2-5 June 1993. Note that virtually all of the sightings were nearshore in Upper Cook Inlet, and 56% were near the Big Susitna River.



BELUGA SURVEYS - JULY 1993

Figure 3: Aerial survey tracklines and beluga whale groups seen 25-29 July 1993. Note that all of the sightings were nearshore in Upper Cook Inlet, and 74% were near the Big Susitna River.



BELUGA SURVEYS - SEPTEMBER 1993

Figure 4: Aerial survey tracklines and beluga whale groups seen 3-9 September 1993. Note that most (77%) of the sightings were nearshore in Upper Cook Inlet. Unlike surveys in June and July, in September most whales were seen in Knik and Turnagain Arms.



BELUGA SURVEYS - JUNE 1994

Figure 5: Aerial survey tracklines and beluga whale groups seen 1-5 June 1994. Note that virtually all of the sightings were nearshore in Upper Cook Inlet, and 91% were near the Big Susitna River. Only 3 small groups were seen in the Lower Inlet.



BELUGA SURVEYS - JULY 1995

Figure 6: Aerial survey tracklines and beluga whale groups seen 18-26 July 1995. Note that virtually all of the sightings were nearshore in Upper Cook Inlet, and 89% were near the Big Susitna River. Only one small group was seen in the Lower Inlet.



BELUGA SURVEYS - JUNE 1996

Figure 7: Aerial survey tracklines and beluga whale groups seen 11-17 June 1996. Note that all of the sightings were nearshore in Upper Cook Inlet, and 81% were near the Big Susitna River. No beluga whales were seen in the Lower Inlet.



BELUGA SURVEYS - JUNE 1997

Figure 8: Aerial survey tracklines and beluga whale groups seen 8-10 June 1997. Note that virtually all of the sightings were nearshore in Upper Cook Inlet. Only one whale was seen in the Lower Inlet. Relatively fewer (28%) were near the Susitna Rivers than in other years (56-91%), and more (61%) were in Knik Arm than in other years (0-23%), perhaps a function of an El Nino affect on fish runs.

Summary of aerial counts of beluga whales in Cook Inlet, Alaska. Counts are cumulative across several surveys in the respective category.

| Date              | Total | June counts      |                  | July counts      |                  |
|-------------------|-------|------------------|------------------|------------------|------------------|
|                   |       | Upper Cook Inlet | Lower Cook Inlet | Upper Cook Inlet | Lower Cook Inlet |
| 1973 <sup>a</sup> | 69    | 383              | 83%              | 784              | 100%             |
| 1973 <sup>b</sup> | 64    | 43               | 73%              | 275              | 48%              |
| 1983 <sup>b</sup> | 218   | 213              | 98%              | 33               | 15%              |
| 1993 <sup>c</sup> | 1245  | 1230             | 99%              | 689              | 55%              |

<sup>a</sup> Data from O'Brien (1984).  
<sup>b</sup> NMML report of this is from Platforms of Opportunity database.  
<sup>c</sup> Data from this current survey.

Beluga whale sightings in the Gulf of Alaska outside of Cook Inlet.

| Location      | Count | Date            | Data source   |
|---------------|-------|-----------------|---|
| Kodiak Island | 1     | 16 July 1974    | Herman and Hall, 1978                                     |
| Kodiak Island | 1     | 2 Mar 1977      | Umanson and Hall, 1978                                    |
| Kodiak Island | 1     | 2 Aug 1982      | Umanson and Hall, 1978                                    |
| Plover Island | 1     | March 1976      | Umanson and Hall, 1978                                    |
| Plover Island | 20    | 18-19 July 1982 | Carlson, 1982   |
| Yakutat Bay   | 21    | 21 May 1975     | Umanson and Hall, 1978                                    |
| Yakutat Bay   | 2     | 15 Sep 1979     | R. Rupp, NMML, pers. comm.                                |
| Yakutat Bay   | 17    | 19 Feb 1992     | Umanson, pers. comm.                                      |
| Yakutat Bay   | 5     | 20 Aug 1997     | R. Scallan, NMML, Alaska Dept. Fish and Game, pers. comm. |
| Yakutat Bay   | 1     | 20 Aug 1997     | R. Scallan, NMML, Alaska Dept. Fish and Game, pers. comm. |



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